

What is claimed is:

1. A method of producing a phenol novolak resin having an ortho ratio of 30% or more according to the following method (1) or (2):

(1) a method of reacting a phenol and an aldehyde using an oxalic acid catalyst at 110 to 160°C under pressure;

(2) a method of reacting a phenol and an aldehyde under pressure while removing the heat of reaction by a condenser with controlling a pressure so that water or an organic solvent present in the reaction system is refluxed.

2. The method of producing a phenol novolak resin according to Claim 1 wherein the aldehyde is formaldehyde.

3. The method of producing a phenol novolak resin according to Claim 1 wherein the phenol is ortho-cresol.

4. The method of producing a phenol novolak resin according to any one of Claims 1 to 3 wherein the ortho ratio of the phenol novolak resin is from 30 to 60%.

5. A method of producing a phenol novolak resin having an ortho ratio of 30% or more wherein a crude phenol novolak resin having an ortho ratio of less than 30% is heated at 110 to 180°C in the presence of a strong acidic catalyst.

6. The method of producing a phenol novolak resin according to Claim 5 wherein the strong acidic catalyst is sulfuric acid, benzenesulfonic acid or toluenesulfonic acid.

7. The method of producing a phenol novolak resin according

to Claim 5 wherein the phenol novolak resin is an ortho-cresol novolak resin.

8. The method of producing a phenol novolak resin according to any one of Claims 5 to 7 wherein the ortho ratio is from 30% to 50%.

9. A method of improving the ortho ratio of a phenol novolak resin wherein a crude phenol novolak resin is heated at 110 to 180°C in the presence of a strong acidic catalyst.

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100